

# **CHAPTER 6**

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## **OPTIONS ANALYSIS**

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With the Nebraska aviation system's deficiencies identified, the next step in the analysis is to determine the options available to address the deficiencies. For the most part, while deficiencies were noted for some of the performance criteria, the analysis also revealed where the airport system, as currently stratified, surpasses the State's demand for aviation services and provides overlapping or unnecessary coverage. The options available to meet the deficiencies, as well as to address surpluses in the State's aviation system, are discussed by goal category in the following sections.

### ACCESS OPTIONS

There were four objectives identified under the access goal category. These included the following:

- ☐ Airports serving population centers
- ☐ Airports accommodating medical flights
- ☐ All-weather/instrument coverage
- ☐ Surface access of airports

Options to address the deficiencies, as well as surpluses, for each of the four access objectives are discussed below.

#### Airports Serving Population Centers

The adequacy and deficiencies analysis revealed that the existing Nebraska aviation system serves 98.9 percent of the State's population using 30-minute drive times from all 90 airports included in the system. In terms of land area, the system's drive time coverage is 84 percent of the State's total land area. This indicates that the existing system provides sufficient coverage in general terms. More importantly was the provision of service to population centers throughout the State and consideration of the types of airports that provided coverage to these centers. There were 33 population centers over 5,000 persons identified in the previous chapter. The analysis revealed that service by existing airports categorized as National and Regional, in terms of 30-minute drive times, is provided to all 33 of these communities. The coverage is actually overlapping in several areas of the State when the 30-minute drive times for both the National and Regional airports are considered.

In addition to examining population centers, the actual coverage provided by the four airport classifications was reviewed to determine if, from the State's perspective, sufficient coverage was being provided across the State's geographic area. Therefore, an analysis of each classification was conducted to evaluate deficiencies, as well as surpluses. This analysis is important to the study for several reasons. The demand analysis that was used to initially stratify the airport system into categories was not based on existing facilities and did not review the ability of the airports to meet the standards of the classification level to which they were categorized. This process also did not examine, from a geographic standpoint, how the stratification provided coverage to the State. As the system was stratified and the geographic coverage provided by the airports was reviewed, significant duplication in service was identified. The analysis of the State's need for airports in the individual categories, including the need for airports to serve more important roles than currently identified (as well as lesser roles), is part of this chapter.

## **National**

In reviewing the coverage provided by the National category airports (see Exhibit 5-3) as determined through the demand analysis, there are significant overlaps in the Omaha area, with Eppley, Millard, and North Omaha serving much of the same population, as well as geographic area. Since Eppley is the major commercial service airport in the State, it is important that the highest level of facilities is provided at the airport. As previously noted, Eppley is currently operating at a high level of its operational capacity, although the airport is currently addressing this need through development of a new parallel runway. To assist Eppley in serving the general aviation demand in the Omaha region, Millard is also of significance to the State and the Omaha area. Therefore, Millard should also provide a high level of facilities to attract general aviation users in the region to ensure the long-term operational efficiency of Eppley. North Omaha, however, provides duplicative services and does not serve the more sophisticated general aviation aircraft operating in the Omaha region and does not need to meet the standards for a National airport. North Omaha's function in the system is similar to those facilities in the Local category and, due to the existing facilities available at the airport and the lack of need for additional capacity to serve business-type general aviation aircraft, North Omaha's role can be changed to Local to reflect its true function in the system.

Review of the coverage provided in the rest of the State indicates that a void in coverage for National airports exists in the northern portion of the State. While a large population base does not exist in this region, provision of an airport with sufficient facilities to accommodate business demand is important to the State.

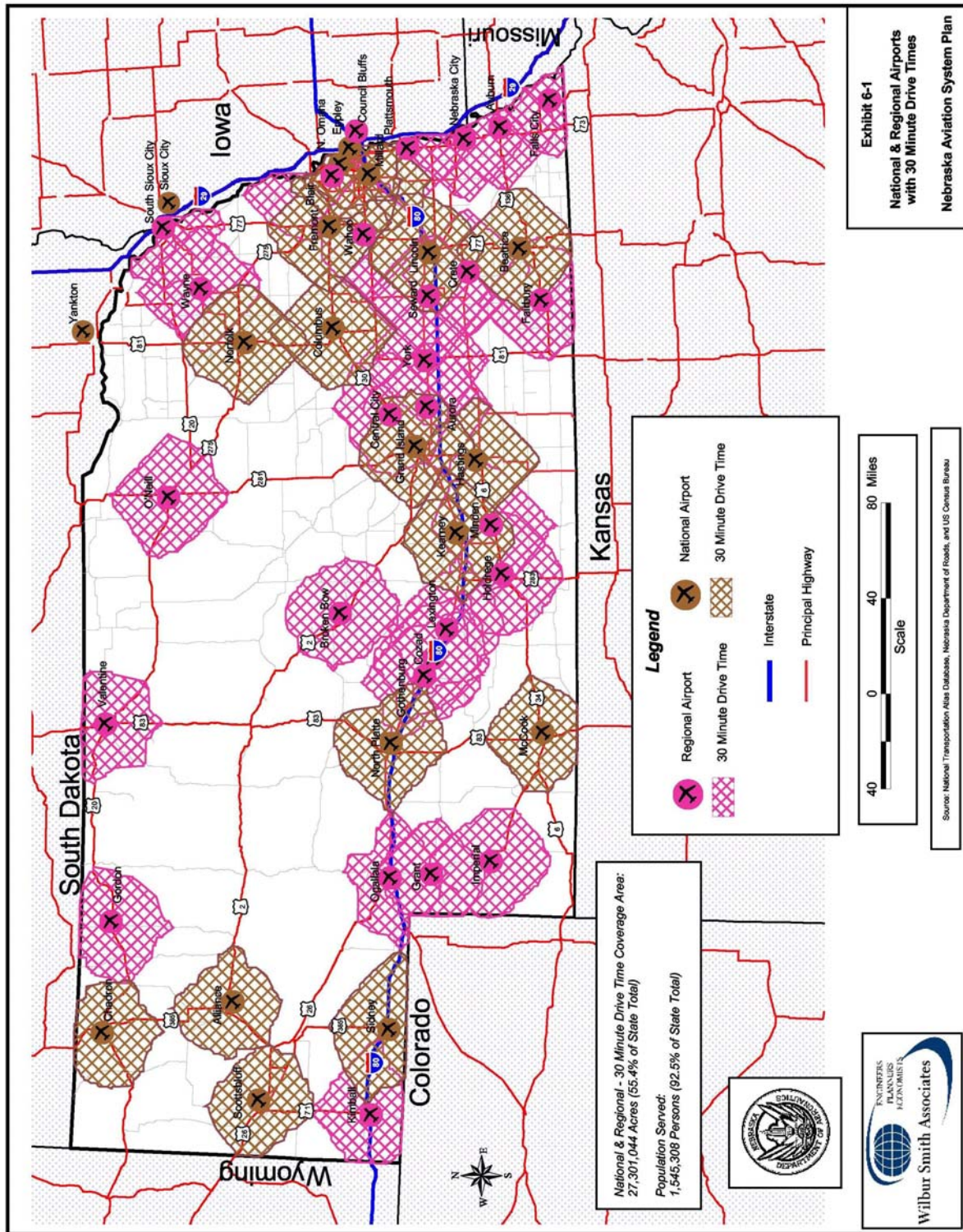
Airports in Valentine, Broken Bow, Gordon, and O'Neill, all in the Regional category, are located in the void area. Other airports that are located in the area include Ainsworth, Atkinson, Hyannis, Mullen, Thedford, Sargent, Ord, and Loup City in the Local category. Each of these airports was evaluated to determine if one could be transferred to the National category to fill this void and provide additional coverage to the State's population and land area. After reviewing existing facilities, population centers, and airport locations, it was determined that Valentine would be recommended for inclusion as a National airport for accessibility reasons.

In addition, while a significant void in coverage does not exist, because of the significant population base south of Omaha and west of Lincoln, options for improving National airport coverage in these areas were examined. West of Lincoln yet east of Grand Island and Hastings is York and Seward. Of the two airports, Seward's coverage area overlaps Lincoln, while York's coverage is in addition to Lincoln's service area. In terms of Omaha, while Millard is an important airport in the Omaha region, the airport is landlocked and does not provide sufficient National-level facilities. Plattsmouth, located south of Millard and east of Lincoln could add to the coverage provided by National airports if facilities were upgraded. It was determined through discussions with NDA and the Advisory Committee for this study that both York and Plattsmouth should be National airports. In addition, it was recommended that Millard be moved to the Regional category due to its overlapping coverage and inability to meet National standards.

## **Regional**

In terms of Regional airports, there are again voids in the system; more importantly, there are significant overlaps in the coverage provided by airports in this category. The service provided by National airports must also be considered with the Regional airports in order to reveal the true duplication in service by these larger system airports. **Exhibit 6-1** shows the coverage provided by the two airport categories.

EXHIBIT 6-1



In terms of deficient coverage, the most significant area of the State determined to be without a National or Regional airport is Central Nebraska, specifically the Ord, Sargent, and Loup City area. Of these three airports, the airport in Ord was determined to be most capable of meeting Regional airport standards and providing additional, non-overlapping service to supplement the Regional airport coverage. Therefore, it is recommended that Ord be moved up to Regional status.

Starting in the southwest portion of the State, Ogallala, Grant, and Imperial provide significant overlapping coverage for much of the same population. The location of Grant between Ogallala and Imperial suggests that, by moving Grant from Regional to a lower category airport, sufficient coverage will still be provided to the residents in this area. Based on facilities and activities, as well as review of coverage provided by the Local and Limited airports, it is recommended that Grant be maintained in the Local category.

The next overlap that appears, working from southwest to the east is Gothenburg, Cozad, and Lexington. These three airports have significant overlaps in their 30-minute service areas. Again, the location of Cozad in between the two airports suggests that it would be prudent to move Cozad to a lower category to reduce the concentration of Regional airports in this area. From a review of the coverage provided by Local airports, it appears that moving Cozad to the Local category will provide additional coverage in this category without overlapping existing Local airports. In addition to Cozad, Gothenburg's service area also significantly overlaps the Lexington airport's 30-minute drive time, as well as the National service area of North Platte. While Cozad was recommended for movement to Local, existing facilities and overlaps suggest that Gothenburg should be moved to the Limited category.

Just south of Lexington is Holdrege and Minden. These two airports also are located close to one another, providing residents in this area more access than is required to Regional airports. In addition, Minden is located just south of Kearney, a National airport whose service area extends over most of Minden's service area. Review of the facilities at the two airports suggests that Minden has fewer facilities and similar characteristics to the Local airports. Therefore, based on the overlaps, it is recommended that Minden be moved to Local status.

East of Minden is a group of the following three airports: Central City, Aurora, and York. Of these three airports, York provides the most significant coverage to the population center in this area and has more facilities than either Central City or Aurora. In addition, airports in the National category including Grand Island and Columbus provide coverage to this region. Both the Central City and Aurora airports are contained within the 30-minute service area for Grand Island. Therefore, both Central City and Aurora were recommended for movement to the Local category to equalize the service in this region to the population and economic activity actually occurring.

South of the Central City/Aurora/York overlap is Fairbury. Part of the Fairbury service area extends over the Crete service area and, more importantly, the Beatrice service area. Beatrice is a National airport located just east of Fairbury. The airport in Fairbury is not considered to be of Regional importance based on the population in the region, as well as the economic activity. Therefore, it is recommended that Fairbury be moved to the Local category.

There are also overlaps in coverage along the eastern Nebraska border, especially in the southeast. Falls City, Auburn, and Nebraska City airports have overlapping service areas and were all categorized as Regional airports. Review of facilities and proximity indicates that Auburn, the middle airport, can be moved to a lower category while the region is still sufficiently covered by Regional airports. With the significant service provided by the other two Regional airports, Auburn can be moved to the Local category and the region still has sufficient access to airports with more sophisticated facilities.

Finally, the airport serving South Sioux City provides significant duplication with the Wayne airport, as well as Sioux Gateway Airport in Iowa. While not a Nebraska airport, Sioux Gateway is a commercial service airport serving the region with good facilities that provide residents in this area sufficient access to air transportation, both in terms of commercial and general aviation. Sioux Gateway would likely fall in Nebraska's National category based on activity in the region and the airport's facilities. Because of the overlaps in the service areas and the presence of Sioux Gateway, it is recommended that South Sioux City be moved to the Local category.

Council Bluffs, located in Iowa, also provides service to Nebraska in terms of coverage in the Omaha area. Located just over the state border, not far from Interstates 80 and 29, the airport was previously designated as a reliever airport for Eppley Airfield prior to the new FAA reliever airport criteria published in 2000. Council Bluffs would likely fall in Nebraska's Regional category.

### **Local**

The system stratification process identified those airports in the existing Nebraska system that are critical to the long-term viability of aviation in the State. The process identified the following four categories of airports, from most important to least: National, Regional, Local, and Limited. Previous sections have focused on the coverage provided by the National and Regional airport 30-minute drive times. The next tier of airports, Local, supplements the National and Regional coverage, but is more focused on service to small communities throughout the State. The coverage provided by the Local airports was reviewed next to determine if there are airports needed in this category, or if there are additional overlaps indicating that sufficient coverage is already provided by either a National or Regional airport. **Exhibit 6-2** depicts the coverage provided by the top three airport system categories.

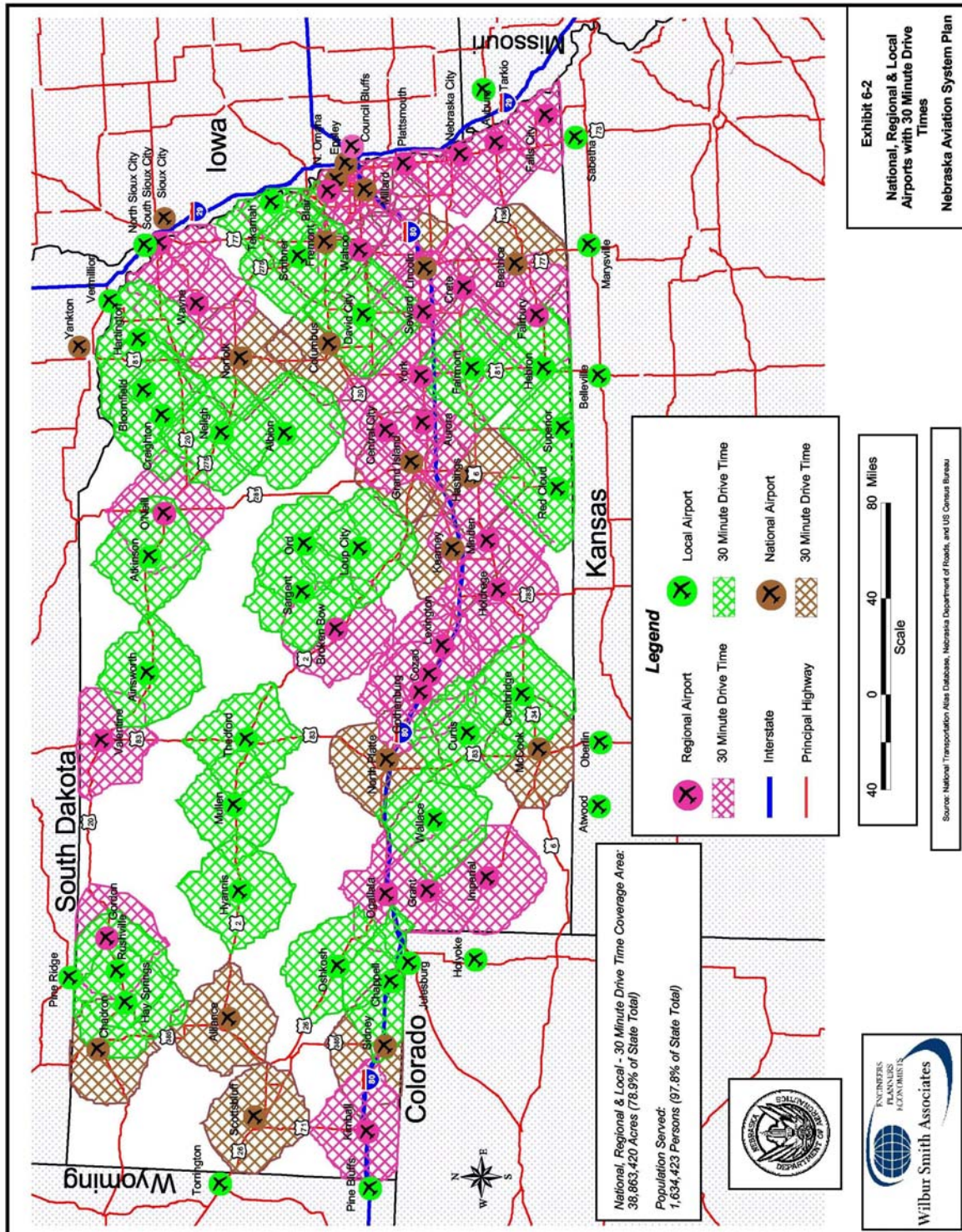
Starting in the northwest corner, the service areas for Rushville and Hay Springs overlap significantly. Chadron, a National airport, and Gordon, a Regional airport, both provide access to this region. The facilities provided at these two airports suggest that other airports serving this same area are likely functioning in a more limited role. Therefore, both airports (Rushville and Hay Springs) are recommended for movement to the Limited category. Pine Ridge, South Dakota, also has an airport with a service area that extends into this region. Pine Ridge would likely be categorized as a Local airport in the Nebraska classification system.

Just below the Rushville/Hay Springs area is Hyannis, Mullen, and Thedford. While the service areas do not overlap tremendously, provision of three airports in the Local category in this region is considered a surplus given the population and economics of the area. Therefore, the airport in the middle, Mullen, is recommended for movement to the Limited category.

Along the Colorado-Nebraska border, Chappell and Oshkosh are located in close proximity to each other and have overlapping service areas. In addition, Sidney, a National airport, and Ogallala, a Regional airport, provide coverage in this area. The airport serving Julesburg, Colorado, also provides access in this region. Holyoke, a general aviation airport in Colorado, provides duplicative coverage to the Grant and Imperial airports in western Nebraska. Based on population and proximity, it is recommended that the airport serving Chappell be moved to the Limited category.

In Central Nebraska, Sargent, Ord, and Loup City provide significant overlapping service to this region. As previously noted, Ord has been recommended to be included as a Regional airport to supplement coverage

EXHIBIT 6-2



for that category. Maintaining Loup City as a Local airport is sufficient coverage in this region; therefore, it is recommended that Sargent be moved to the Limited category to reduce the overlaps in this area.

There are numerous airports in the northeast section of the State in the Local category including Hartington, Bloomfield, Creighton, and Neligh. In addition to these Nebraska airports, the airports serving Yankton and Vermillion, South Dakota, also provide air access north of Hartington. Wayne, a Regional airport, and Norfolk, a National airport, also provide coverage in this portion of the State. While population is denser in this region compared to regions in western Nebraska, it is not necessary to maintain this many airports in the Local category. Based on proximity and overlaps, it is recommended that Bloomfield be moved to the Limited category.

Finally, south of Nebraska along the Kansas border, five airports that would likely be categorized as Local in the Nebraska classification system provide additional air access for Nebraska residents. These airports serve Atwood and Oberlin, south of McCook; Belleville, south of Hebron; Marysville, south of Beatrice; and Sabetha, south of Falls City.

### **Limited**

Those airports that are not in the first three categories, but are considered part of the Nebraska Aviation System, fall into the Limited category. For the most part, Limited airports include the majority of the non-Federally eligible (non-NPIAS) airports, many of which have turf strips and are supporting few operations. These airports have been determined to provide limited facilities to sparsely populated areas, or are currently served by airports in higher categories. Therefore, while analysis was not conducted of the adequacy or surplus of airports in the Limited category, recommendations from previous analyses will provide that, when completed, the Nebraska Aviation System will have sufficient Limited airports to sufficiently cover the State to supplement the other airports.

### **Airports Accommodating Medical Flights**

As noted, airports are used for transport of patients, as well as doctors conducting specialty clinics. In order to provide access for these medical flights, an airport meeting the criteria for National or Regional airports should be available in relation to primary hospital locations. For critical access hospitals, an airport meeting the criteria for National, Regional, or Local should be available. Previous analyses in Chapter 5 indicated that there are currently eight primary hospital location in the State that are outside the 30-minute drive times for existing airports categorized as National or Regional. These eight areas include the following:

- ☐ Ainsworth
- ☐ Ord
- ☐ Creighton
- ☐ Albion
- ☐ Neligh
- ☐ Osmond
- ☐ Plainview
- ☐ West Point

These eight areas were noted to have hospitals with more than 20 short-term care beds, but were not within 30 minutes of a National or Regional airport.

In addition, there were four hospital locations that are currently outside the 30-minute drive times for existing airports categorized as National, Regional or Local. These four include the following:

- ❑ Benkelman
- ❑ Bridgeport
- ❑ Lynch
- ❑ Pawnee City

The NASP has identified that primary hospitals, determined to be those with more than 20 short-term care beds, should be located within a 30-minute drive of an airport in the National or Regional categories. It was determined that critical access hospitals should be located within a 30-minute drive of an airport in the National, Regional, or Local categories. The options available to meet this objective include upgrading an existing airport, constructing a new airport, relying on other airports outside the State, or accepting that this objective will not be met (do-nothing). For these 12 communities, there are no airports in surrounding states that are in proximity to provide coverage. Of these three options, the most likely would be to upgrade an existing airport if one exists in the area.

Five of the eight communities that have primary hospitals have existing airports that were initially identified as Local airports based on the initial stratification process. These five included:

- ❑ Ainsworth
- ❑ Albion
- ❑ Neligh
- ❑ Creighton
- ❑ Ord

These airports could be upgraded to Regional status to meet the objective for the provision of adequate aviation services to meet the medical transportation needs of the State. Three communities, Osmond, Plainview, and West Point, do not have existing airports. Osmond and Plainview are located south east of Creighton and Bloomfield, not within a 30-minute drive of an airport outside the State of Nebraska.

For the four communities that have critical access hospitals but are outside the existing coverage provided by the National, Regional, and Local category airports, only one has an existing airport, Pawnee City. The other three do not have existing airports.

In terms of options for meeting the objective related to accommodating medical activity, if airports were not upgraded and new ones not constructed, the Nebraska Aviation System would be deficient in this objective for these communities.

### **All-Weather/Instrument Coverage**

All-weather/instrument coverage was examined both in terms of the types of approaches available at the airports throughout the State, as well as the availability of weather-reporting services. This analysis measured the percentage of the State's land area within a 30-minute drive time of an airport with an approach, either precision or non-precision. It was determined that approximately 1.6 million persons (95 percent of the population), or 67 percent of the State's land area, are within a 30-minute drive of an airport with an existing approach. The percentage of the State's land area within a 30-minute drive time of an airport with a weather system is 45 percent, while approximately 1.4 million persons (87 percent of the population) are located in these coverage areas.

It was determined that, instead of basing decisions regarding additional all-weather needs specifically on coverage, decisions would be made based on the role the airport plays in the system. For example, the facility and service standards recommend that all National airports have a precision approach and weather-reporting capabilities. Regional airports were recommended to have a non-precision approach and to also have automated weather facilities. The need for these facilities will be examined further in a subsequent chapter. Based on the recommendations from the airport-specific analysis, additional approach and weather capabilities will be reviewed in terms of the recommended system as well as how this system, provides coverage to the State's population and land area.

### **Surface Access of Airports**

Based on data provided by NDA through its on-site visits to the airports throughout the State, it is estimated that 27 airports in the State have paved access roads. Similar to all-weather/instrument coverage, surface access is a standard that is addressed on an airport-specific basis as part of the facility and service standards. For example, National and Regional airports are recommended to have fully paved roads that provide access from the airport's associated city to the terminal area. There are only two options for this objective, to provide or not to provide the recommended type of access. In order for the system to meet this goal, appropriate access must be recommended for those airports currently not meeting the facility and service standards for their airport role related to surface access. The recommendations chapter will identify surface access projects for those airports that do not meet this objective.

## **ECONOMIC OPTIONS**

For this study, the importance of airports to serve the State's economic and trade centers was recognized. Deficiencies in the ability of the existing system to meet this objective were identified. In addition, deficiencies related to airports serving business and air cargo needs, as well as agricultural aviation needs, were noted. Options available to address the economic deficiencies are discussed below.

### **Airports Serving Economic/Trade Centers**

Economic/trade centers were examined to determine if they were within 30-minute drive times for airports identified as National and Regional. The analysis revealed that the following communities with identified economic/trade centers were not located within a 30-minute drive of an airport currently identified in the National or Regional categories:

- ☐ Creighton
- ☐ Hartington
- ☐ Neligh
- ☐ Ainsworth
- ☐ Albion
- ☐ Ord
- ☐ Superior
- ☐ Bridgeport
- ☐ West Point
- ☐ Geneva

Seven of these 10 communities have existing airports that have been identified in the Local category. Six of the seven communities also have hospitals that meet the criteria for provision of airport services in the

National or Regional category. Superior, which does not have a hospital that meets these criteria, has an existing Local airport serving the community. Of these seven communities, Hartington is located near the South Dakota-Nebraska border and is within a 30-minute drive of the airport serving Yankton, South Dakota. This airport is comparable to a National category airport based on the Nebraska Aviation System Plan (NASP) definitions. That leaves six existing Local airports that serve communities that meet the criteria for an economic/trade center.

Three of the 10 communities do not have existing National or Regional airports, Bridgeport, West Point, and Geneva. Bridgeport is at the edge of the Scottsbluff service area, Geneva is at the edge of the York service area, and West Point is west of the Tekamah service area. It should be noted that Geneva is within Fairmont's service area (a Local airport) and West Point also has a hospital that meets the criteria.

The options available to meet the objective for providing sufficient air access for economic/trade centers include upgrading existing airports to National or Regional status, relying on existing airports in other states, constructing new airports, or allowing this objective to remain unfulfilled (do-nothing). For seven communities with existing Local airports, the airports could be upgraded to at least Regional status in order for this objective to be met. Hartington can rely on Yankton to meet the economic needs of the area. The communities of Bridgeport and West Point do not have existing airports that can be upgraded and the options for these three communities would be to construct new airports or to allow this objective to remain unfulfilled.

### **Airports Meeting Business/Air Cargo Needs**

For purposes of this analysis, it was determined that, if airports were developed to serve the identified economic/trade centers, it is likely that the air cargo needs would also be able to be met. Therefore, the options for the Nebraska Aviation System to meet this objective are the same as those previously discussed for the economic/trade centers. In order for this objective to be met, the most feasible option would be to upgrade the six airports identified to at least the Regional category.

### **Airports Meeting Agricultural Aviation Needs**

While aerial application services are needed for many crops, specifically those identified in Chapter 5 as requiring high amounts of aerial application, the actual facility needs for aerial applicators are minimal compared to other industry requirements. Aerial applicators can operate on turf strips, and many are operated at private airports that service the farms. It was determined that the existing airport system was adequate to serve the agricultural aviation needs of Nebraska.

## **PHYSICAL OPTIONS**

In addition to examining the ability of the airports to meet minimum facility and service standards, the ability of the airport system to operate efficiently from a capacity standpoint was also reviewed. The airport system's existing pavement conditions were also evaluated to provide a measurement of the system's performance. Options to address the identified physical deficiencies are discussed below.

### **Airports Meeting Minimum Facility and Service Standards**

In previous analyses, the adequacy of the existing system to meet the identified standards was examined on the classification level, as well as specifically for the various facilities and services. The following facility and service standards were analyzed for the four airport classifications:

- ☐ Runway length
- ☐ Runway width
- ☐ Crosswind runway
- ☐ Taxiway
- ☐ Airport Reference Code (ARC)
- ☐ Navigational aids (NAVAIDs)
- ☐ Lighting
- ☐ Weather
- ☐ Visual Approach Aids
- ☐ Services
- ☐ Fuel
- ☐ Facilities
- ☐ Ground access

For each facility and service standard, the following are the three basic options available for the airports and the overall system to address deficiencies to meet the objectives:

- ☐ Improve the facility or service at the existing airport
- ☐ Identify another proximate airport to be improved
- ☐ Accept the deficiency

The most likely option is to improve the facility or service at the existing airport in order for this objective to be met.

It was determined that there are numerous facilities and services not being provided based on the initial system stratification. With the options identified in previous sections of this chapter, recommendations have been made that airports be moved from one category to another in order for the system to better meet the overall goals and objectives. Based on these recommendations, the analysis of the system's ability to meet the facility and service standards needs to be reconsidered after selection of the recommended system stratification. The next chapter of this study will address how the transfer of airports into the final stratification improves performance specific to the facility and service standards.

### **Airports Meeting FAA Operational Capacity Guidelines**

An adequate airport system should provide ample capacity to accommodate current and future activity levels. In 2000, 99 percent of all system airports were operating below 60 percent of their available operational capacity. The one airport in the National Airport category whose operations exceeded 60 percent of its capacity in 2000 was Eppley Airfield. This deficiency is currently being addressed at the airport through the construction of a parallel runway. Construction of this runway, which was underway in late 2001, will enable the system to meet this objective 100 percent.

## **SOCIAL/CULTURAL OPTIONS**

A goal of the Nebraska Aviation System is to serve the State's tourism and cultural centers, as well as to serve more isolated areas. The adequacy analysis noted that sufficient data does not exist to evaluate the aviation system's ability to serve tourism and cultural centers throughout the State. Most data indicated that travelers were arriving at many of the State's attractions via car and that aviation services at the existing airports appear to be meeting the needs of those who are currently using aviation.

In terms of serving isolated areas, the analysis showed that 98.9 percent of the State's population is within a 30-minute drive time from an existing Nebraska system airport and that 84 percent of the State's land area is covered by the 30-minute drive times of these airports. While this does leave some gaps in coverage of the State's land area, there are no population centers of more than 5,000 in these areas. It was determined that the existing system adequately serves isolated areas and options were not needed to address this objective.

## **RESULTS OF OPTIONS ANALYSIS**

The options analysis has revealed that, for the most part, the existing Nebraska Aviation System meets the objectives set for the NASP. The analysis showed that the stratification system used to determine the airport roles resulted in many airports providing overlapping coverage and services to the same areas. While it is an objective of the aviation system to serve the State's population, business/economic centers, and isolated areas, the provision of excessive facilities and services is not warranted. The following chapter will address the recommendations from the options analysis and will show how re-classification of the airport roles based on the analysis of the system's ability to meet its goals and objectives will actually improve the performance related to specific objectives, especially in terms of facility and service standards.